Claims

1. Microfluidic device comprising at least one microchannel (13) designed to contain at least one liquid and at least one fluid non-miscible with the liquid and means for stabilizing the interface between the liquid and the fluid, said microchannel (13) being bounded by a bottom wall (2), side walls (4) and a top wall (5), microfluidic device (1) characterized in that the means for stabilizing comprise at least one electrode (9) arranged on at least one part of a first wall of the microchannel (13), over the entire length thereof, and at least one counter-electrode (10) arranged over the entire length of the microchannel, on at least one part of a second wall arranged facing the electrode.

2. Microfluidic device according to claim 1, characterized in that the counter-electrode (10) is arranged on the whole of the second wall.

3. Microfluidic device according to one of the claims 1 and 2, characterized in that the electrode (9) and counter-electrode (10) are respectively arranged on the bottom wall (2) and the top wall (5).

4. Microfluidic device according to one of the claims 1 and 2, characterized in that the electrode (9) and counter-electrode (10) are respectively arranged on the side walls (4).

5. Microfluidic device according to any one of the claims 1 to 4, characterized in that the fluid or liquid being electrically conducting, the microfluidic device (1) comprises insulating means arranged between the electrode or counter-electrode and said fluid or said liquid.

6. Microfluidic device according to any one of the claims 1 to 5, characterized in that the fluid flows in the microchannel (13) in an opposite direction to that of the liquid.

7. Microfluidic device according to any one of the claims 1 to 6, characterized in that the microchannel (13) comprises, at least at one end, two end microchannels designed for the fluid and the liquid to respectively flow therethrough.